

REMARKS

INTRODUCTION

In accordance with the foregoing, no claims have been amended. Claims 1, 3, 4, 7, 9, 13, 15-21 and 25 are pending and under consideration.

CLAIM REJECTIONS

Claims 1, 4, 7, 13 and 18 were rejected under 35 USC 103(a) as being unpatentable over Adachi et al. (JP 11-206184) (hereinafter "Adachi") in view of Youn et al. (US 6,445,879) (hereinafter "Youn").

It is respectfully noted that it is believed that the Office Action contained a typographical error and intended to the rejection to be: Claims 1, 4, 7, 13 and 18 were rejected under 35 USC 103(a) as being unpatentable over Adachi et al. (JP 11-206184) in view of **Plunkett** (US 4,093,900) (hereinafter "Plunkett"). The Office Action, on page 2, refers to reference numerals and components from Plunkett that are not contained in Youn. The following remarks are related to overcoming the rejection based on Plunkett with further arguments based on Youn.

Claims 3, 9, 15-17, 19-21 and 25 were rejected under 35 USC 103(a) as being unpatentable over Adachi in view of Plunkett and further in view of Hakala et al. (US 5,847,533) (hereinafter "Hakala").

Claims 1, 3 and 4

Claim 1 recites: "...a switching controller directly turning on and turning off one of the first and second switching units provided in respective opposite ends of the inverting part so that the overcurrent consumed by the brake resistors is changeable in proportion to a rotation speed of the motor, when the brake relays short circuit the plurality of motor windings..." The Office Action relies on Plunkett to show this feature of claim 1, and specifically relies on the power regulator 34 and conversion apparatus 12 shown in Figure 1 of Plunkett.

In contrast to claim 1, Plunkett discloses a protection circuit that is connected to the power regulating circuit 34. The protection circuit 55 establishes upper and lower voltage limits for the power conversion apparatus 12 and operates to modify the braking or motoring torque commands in order to maintain the inverter voltage within the prescribed limits. See Plunkett, 6:49-7:3. In claim 1, the switching controller **directly** turns on/off one of the first and second switching units provided in respective opposite ends of the inverting part when dynamic braking

is operating.

In short, Plunkett does not disclose or suggest one of the first and second switching units controls the changeable overcurrent consumed by the brake resistors, in proportion to a rotation speed of the motor. Plunkett merely discloses that a power regulator controls a power conversion. Accordingly, the switching units and the switching control units of the subject application cannot be easily invented even by a combination of Plunkett or Youn.

Regarding Youn, Youn does not disclose a brake resistor and one of the first and second switching units provided in opposite ends of an inverter, as recited in the subject application. Further, a constant current circuit of Youn does not control the overcurrent consumed by the brake resistors to be changed in proportion to a rotation speed of the motor, as in the subject application, but controls a control current of the servomotor to be a previously set value of the constant current circuit. Accordingly, the switching control unit of the subject application is different from the constant current circuit of Youn.

Claims 3 and 4 depend on claim 1 and are therefore believed to be allowable for at least the foregoing reasons.

Withdrawal of the foregoing rejection is requested.

Claims 7 and 9

Claim 7 recites: "...directly turning on and turning off one of the first and second switching units provided in respective opposite ends of the inverting part so that the overcurrent consumed by the brake resistors is changeable according to a rotation speed of the motor..." The Office Action relies on Plunkett to show this feature of claim 7, and specifically relies on the power regulator 34 and conversion apparatus 12 shown in Figure 1 of Plunkett.

In contrast to claim 7, Plunkett discloses a protection circuit that is connected to the power regulating circuit 34. The protection circuit 55 establishes upper and lower voltage limits for the power conversion apparatus 12 and operates to modify the braking or motoring torque commands in order to maintain the inverter voltage within the prescribed limits. See Plunkett, 6:49-7:3. In claim 7, the first and second switching units provided in respective opposite ends of the inverting part are **directly** turned on/off without a protection circuit.

Claim 9 depends on claim 7 and is therefore believed to be allowable for at least the foregoing reasons.

Withdrawal of the foregoing rejection is requested.

Claims 13, 15-21 and 25

Claim 13 recites: "...a controller to directly control selected ones of the plurality of switching units so that the power exhausted by the brake resistors corresponds to a rotation speed of the motor..." The Office Action relies on Plunkett to show this feature of claim 13, and specifically relies on the power regulator 34 and conversion apparatus 12 shown in Figure 1 of Plunkett.

In contrast to claim 13, Plunkett discloses a protection circuit that is connected to the power regulating circuit 34. The protection circuit 55 establishes upper and lower voltage limits for the power conversion apparatus 12 and operates to modify the braking or motoring torque commands in order to maintain the inverter voltage within the prescribed limits. See Plunkett, 6:49-7:3. In claim 13, the controller **directly** controls selected ones of the plurality of switching units.

Claims 15-21 and 25 depend on claim 13 and are therefore believed to be allowable for at least the foregoing reasons.

Withdrawal of the foregoing rejection is requested.

CONCLUSION

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935. Respectfully submitted,

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